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For Your Interest

Iowa Farm Science Editorial Board

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livestock

Compare Rations For Bred Sows

NUTRITIONAL experiments show that protein level and feed intake influence the gestation and lactation performance in swine.

In the first experiment, diets containing two levels of protein—6.4 ounces versus 12.8 ounces per sow per day—and two levels of energy were fed to 64 sows. These sows were fed individually through three successive reproductive cycles.

All diets consisted of the same proportion of corn to soybean meal, and the energy or protein level was adjusted by varying the quantity of starch, dextrose and soybean oil. During lactation the sows were full hand-fed the same ration. There were no significant differences in the number of pigs born alive, average birth weight of the pigs, or in gain of the nursing pigs from birth to two weeks of age. Those fed high protein showed a significant difference in the number of pigs weaned—(8.8 versus 7.3 pigs per litter).

A second experiment studied the effects of two levels of feed intake —4 lbs. or 6 lbs. per head per day in the summer and 5 lbs. or 7 lbs. in the winter. The rations were fed two weeks prior to and three weeks after turning the boar in with the sows and again from the 13th week until farrowing.

The feeding level was the same for all the sows from the fourth through the 12th week of gestation. Sows fed the low level of feed (5 lbs.) farrowed significantly more live pigs during the breeding season of the second reproductive cycle than did sows fed the high level of feed (7 lbs.).

The sows completed two reproductive cycles. No significant effects occurred in birth weights, number weaned or gain from birth to weaning at two weeks.

Supervising the experiments are V. C. Speer, V. W. Hays and J. R. McCall.

Baby Pig Nutrition Studies

THE POSSIBLE metabolic role of high levels of copper in swine nutrition is being studied by Iowa State University animal scientists.

A growth response to 250 ppm. (parts per million) copper was noted with diets containing either soybean meal, isolated soybean protein, fish, flour or casein as the protein source. Based on several biochemical or biological measurements, it appears that the growth response to high levels of copper is undoubtedly due to an antibiotic-like effect on the intestinal flora (bacteria).

Other areas of the study deal with vitamin A toxicity, riboflavin levels and plasma amino acid requirements. Vitamin A toxicity was produced in the baby pig in 4 to 6 weeks with 100,000 International Units of Vitamin A per pound of diet. Higher levels produced toxicity in less time.

The possibility of a different riboflavin requirement at different temperatures was examined. Pigs fed riboflavin levels above 1.0 mg. per pound of diet gained more than those fed 1.0 mg. or less. Feed requirement was increased as temperatures decreased below 60°F. No consistent riboflavin temperature interactions were observed.

Plasma amino acid (PAA) analyses were shown to be an effective criterion of amino acid status on the free choice fed baby pig when compared to "test meal" fed pig. Methionine, threonine, and valine are indicated as the limiting amino acids in soybean diets, both by calculation and PAA, but additive growth responses to all three have not occurred.

Supervising the experiments are J. T. McCall, V. C. Speer and V. W. Hays.

Hog Feeding Research

IN HOGS the stage of maturity markedly affects their response to raw soybeans, according to Iowa State University animal scientists.

The performance of young pigs is depressed by raw soybeans to a much greater extent than is the performance of finishing pigs. Researchers also found that dietary protein level significantly influences intramuscular fat level. Values of 23, 16, 14 and 10 percent intramuscular fat were correlated with dietary protein levels of 10, 12, 14 and 16 percent, respectively.

The correlation between back fat thickness and loin fat content of loin eye muscle is low. Other study shows that limited feeding of pigs has resulted in reduced growth rate, improved carcass quality and essentially no difference in feed efficiency. Adding the amino acid lysine to low protein diets (12 percent or lower for finishing pigs) has resulted in improved performance but is without effect in corn soybean diets adequate in protein.

Working with these studies are V. W. Hays, V. C. Speer, J. T. McCall and C. C. Culbertson.

Vitamin A Requirements Of Cattle on Feed

THE MINIMUM vitamin A requirement of cattle fed corn finishing rations for four months or longer has been shown to be between 6,700 and 13,600 International Units per steer per day.

The study, conducted by Wise Burroughs, R. H. Kohlmeier, Allen Trenkle, Richard Vetter and Darroll Goll, showed that the concentration of vitamin A in plasma was more indicative of adequate vitamin A nutrition than levels of vitamin A in the liver.

Other phases of the study showed that concentrations of vitamin E in the blood of cattle were

relatively constant during a six-month feeding period. Cattle fed corn silage tended to higher levels of plasma vitamin E than cattle fed corn grain.

special subjects

Farm vs. Nonfarm Satisfactions

A STUDY of new entrants into Iowa farming (as operators) shows that during the 1958-59 and 1960-61 period an average of 2,525 new operators entered farming each year.

The net family income for the initial year of farming averaged about $6,000. About half was from farming activities, and about half from nonfarm sources.

A second study involved the experiences of farm operators who quit farming during the 1958-59 and 1960-61 period and took nonfarm jobs. Findings indicated that 61 percent had higher incomes in nonfarm employment, 28 percent had similar incomes, and 11 percent had lower incomes.

Fifty-four percent reported they were more satisfied with their nonfarm situation than with the farming situation they left. Thirty-three percent reported no differences, and 13 percent reported that they were less satisfied in their nonfarm situation.

Conducting these two studies were Donald R. Kaldor and Norman V. Strand.

High School Grades and Family Net Worth Influence College Attendance

HIGH SCHOOL academic achievement and family net worth determine, in part, whether Iowa farm boys go to college.

Two surveys were made of a state-wide sample of over 800 Iowa farm boys. The initial survey was taken while the boys were seniors in high school. The second survey was made 33 months after the boys had finished high school.

Among boys whose families had under $20,000 of net worth, 55 percent of those with A and B grade records attended college while only 18 percent of those with C and D records entered college. Among boys whose families had $45,000 or more net worth, 67 percent of those with A and B records attended college and 38 percent of those with C and D records entered college.

Among boys with similar high school academic records, attendance at college was higher for those whose families had high net worth than for those whose families had low net worth. But high school academic achievement was more important in determining college attendance than family net worth.

The data from the survey also indicated that 33 months after high school 30 percent were engaged in nonfarm work, 24 percent were continuing their education, 19 percent were in the armed forces, 10 percent were engaged in farming as operators, 6 percent were doing farm work for wages, 5 percent were working on the home farm for board and room, 1 percent were looking for work, and 5 percent were involved in other activities.

Donald R. Kaldor and Larry Kurtenbach conducted the study.

horticulture

Use of Herbicides on Horticulture Crops

STUDIES of various herbicides continue to add to man's efficiency in weed control.

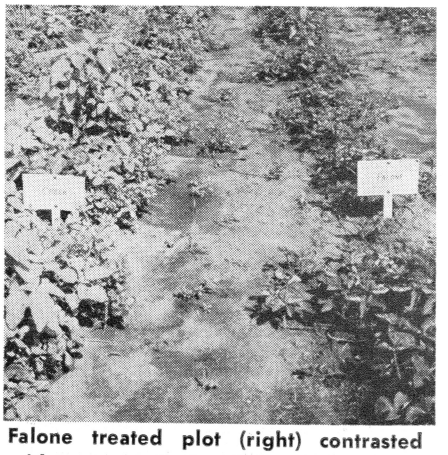
Examination of 1964 Midway strawberry yields show that 1963 summer applications of Dimid, Dacthal, Zytron, Falone, and Sesone did not reduce yields.

Residual studies using two and four times the recommended rates of Simazine and Atrazine on established nursery crops show that the chemicals were 100 percent effective in the 0 to 2-inch soil depth after one year and 30 percent effective at the 2 to 4-inch depth. Samples treated with Casoron showed that the chemical had leached from the soil surface to a 6-inch depth and was 50 percent effective in the 6 to 8-inch depth.

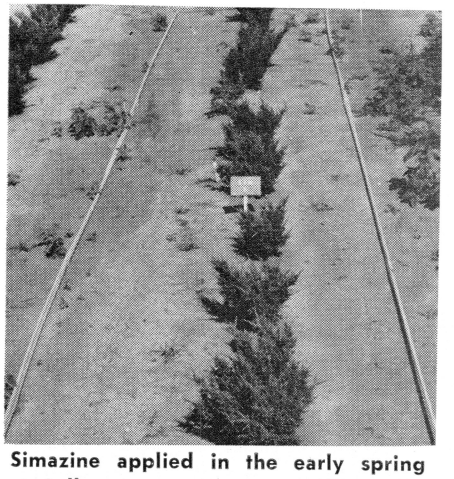
Simazine and Atrazine were also applied for the sixth year to established junipers and yews and resulted in 95 percent control of weeds without crop injury.

Dacthal applications on eight bentgrass selections (putting green turf) thinned stands more than did Zytron or Azak.

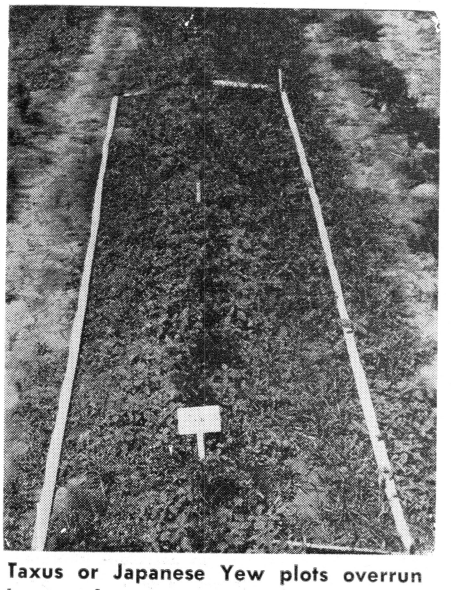
These experiments were conducted by E. L. Denisen, J. P. Mahlstede and E. C. Roberts.



Falone treated plot (right) contrasted with untreated plot (left) shows weed control in strawberries.



Simazine applied in the early spring at 6 lbs. per acre gave excellent control during the entire growing season.



Taxus or Japanese Yew plots overrun by weeds.